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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/811,161

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Manish Sinha

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65798

7590

12/05/2008

MILLER IP GROUP, PLC
GENERAL MOTORS CORPORATION
42690 WOODWARD AVENUE
SUITE 200
BLOOMFIELD HILLS, MI 48304

EXAMINER

WALKER, KEITH D

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

12/05/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/811,161	Applicant(s) SINHA ET AL.	
	Examiner KEITH WALKER	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 16-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 June 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The corrected drawing sheet submitted 6/4/08 is accepted and entered into the record.

Specification Objection

The corrected specification submitted 6/4/08 is NOT accepted. On the corrected sheet submitted it appears the paragraph is being renumbered from [0027] to [0001], which is incorrect. The changes to the body will be accepted upon correction of the above discrepancy. Appropriate action is required.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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1. Claims 1-5 & 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US Publication 2001/0049038 (Dickman).

Dickman teaches a fuel cell system with a power conditioning module that applies conditioned current to a load, a current meter for measuring and reporting the fuel cell's current and a fuel cell controller (Abstract, [0046, 0048, 0049, 0057, 0064]). The controller sets the available output power from the fuel cell and defines the maximum current drawn from the fuel cell through the power conditioning module ([0034, 0035, 0040 & 0041]). As the upper threshold of the available power of the operating fuel cell stacks is reached, the controller increases the available power by increasing the number of operating fuel cells. Alternatively, if the power demand decreases below a threshold, then the available power is decreased by reducing the number of operating fuel cells ([0046, 0051 & 0067]).

Regarding claims 10-12 are not further limiting to the apparatus since the claims are intended use of the apparatus. It is held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus satisfying the claimed structural limitations (MPEP 2114). Furthermore, the fuel cell system has an intended use in a motor vehicle ([0032]).

2. Claims 1-5 & 10-13 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US Publication 2002/0082785 (Jones).

Jones teaches a fuel cell system comprising a fuel cell, a battery, a controller and current and voltage sensors. The fuel cell controller uses an algorithm to control the operation the fuel cell system (Abstract, [0018, 0021, 0022, 0024, 0027]). The voltage and current sensors inform the controller of the output voltage and current from the fuel cell as required by the load. A power conditioning module converts the power into AC voltage and supplies the power to a load ([0052]). The controller increases the available power output when an approach threshold is reached and maintains a constant power when the required power is not longer near the approach threshold. In a similar manner power is decreased when a diverge threshold is reached and then a constant power is maintained when the required power is no longer near the diverge threshold ([0029-0038]). The maximum current draw and available output power are set by the number of fuel cells in the stack and the available reactants flowing to the cells.

Regarding claims 10-12 are not further limiting to the apparatus since the claims are intended use of the apparatus. It is held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus satisfying the claimed structural limitations (MPEP 2114).

Claim Rejections - 35 USC § 103

3. Claims 6-9 & 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Publication 2001/0049038 (Dickman).

The teachings of Dickman as discussed above are incorporated herein.

Dickman teaches a power management scheme with a battery assembly ([0048]). However, Dickman is silent to a battery voltage detector or current detector.

Dickman teaches using current and voltage sensors with the fuel cell system and further teaches detecting and comparing voltages of the load with the DC-DC converter and in analyzing the stack performance ([0048 & 0060]).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the battery assembly with current and voltage sensors so the controller can know the operational parameters of the battery assembly and know when to use the battery assembly or when to recharge the battery assembly. These operating parameters allow the controller to operate the system more effectively and efficiently.

4. Claims 6-9 & 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Publication 2002/0082785 (Jones).

The teachings of Jones as discussed above are incorporated herein.

Jones teaches a power management scheme with a battery assembly ([0048]). However, Jones is silent to a battery voltage detector or current detector.

Jones teaches using current and voltage sensors with the fuel cell system and further teaches detecting and comparing voltages of the load with the DC-DC converter and in analyzing the stack performance ([0048 & 0060]).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the battery assembly with current and voltage sensors so the controller can know the operational parameters of the battery assembly and know when to use the battery assembly or when to recharge the battery assembly. These operating parameters allow the controller to operate the system more effectively and efficiently

Response to Arguments

Applicant's arguments filed 6/4/08 have been fully considered but they are not persuasive.

Applicant alleges the teachings presented Dickman as described in the Office Action are not found. Regarding a draw current sensor, at least paragraph [0064] describes sensing the draw current and sending a signal indicative of the measurement. At least paragraphs [0065-0068] describe a controller with a load following algorithm providing a command signal to a fuel cell setting available to a power conditioning module defining maximum current available. Other paragraphs include [0059-0062 & 0068-0070].

Applicant's argument that "Applicant's process does not necessarily provide a delay in response for a transit, and addresses the transients in a different manner." is

not commensurate in scope with the claims. The teachings of Jones meet the claimed limitations and therefore anticipate the claims.

Applicant argues the controller is not coupled to the voltage regulator or inverter thus these and other devices do not receive a signal defining a maximum current draw from the controller. However, the power conditioning module includes the controlled switch and diodes that allow additional power from the battery to be a supplement to the power supplied by the fuel cell to the load, which defines a maximum draw ([0057]). The switch is controlled by the controller in response to the current.

Applicant alleges no command signal is sent to the fuel cell stack to set the available output power. However, the controller controls the supply of the reactants, which are part of the fuel cell, and the amount of reactants sets the available output power.

Regarding claim 13, the omission of this from the title was obviously a typographical error and has been corrected. All the limitations were properly addressed in the rejection and in the reference.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEITH WALKER whose telephone number is (571)272-3458. The examiner can normally be reached on Mon. - Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

K. Walker

/PATRICK RYAN/

Supervisory Patent Examiner, Art Unit 1795